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PREPARATION OF PLANS FOR TECHNICAL MANUAL VERIFICATION

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## CHAPTER 1

## INTRODUCTION

1-1. Purpose. This pamphlet is presented as an aid to agencies charged with verification of technical manuals (TM). Verification planning is required by AR 25-30, paragraph 1-24n. This pamphlet discusses planning for verification of technical manuals and offers five typical verification plans--one for a separate verification, three for verification combined with other integrated logistics support (ILS) events (validation of TM, logistics demonstration (LD), and technical test II/user test II (TT II/UT II)), and one for verification of material supplementing a commercial off-the-shelf (COTS) manual. This pamphlet applies to the Active Army and is intended as an explanation of some points of preparing verification plans. It is directed to Army personnel or employees who prepare verification plans.

1-2. References.

Appendix A lists required and related publications.

1-3. Explanations and abbreviations.

The glossary explains abbreviations and terms used in this pamphlet.

1-4. Policies and procedures.

a. Policies.

(1) Equipment proponents must verify all new or revised publications, including supplements to COTS manuals acquired to support COTS items. Commercial off-the-shelf manuals are considered to have been validated by public acceptance and use with the manufacturer's equipment. The decision on acceptability of these manuals shall be fully coordinated between the U.S. Army Materiel Command (AMC) proponent and the U.S. Army Training and Doctrine Command (TRADOC) proponent user schools, and meet the requirements of MIL-M-7298 before any contractually binding decision is made on their use. Material developed to supplement COTS manuals will be validated and verified.

(2) A 100 percent verification of all procedures will be performed. There is no assumption that simple tasks can be performed. Each task must be proven to be accurate and useable through the verification process.

(3) Verification will consist of performing all operating and maintenance procedures using military operational and maintenance personnel of the appropriate military occupational specialty (MOS) and skill level expected to use and maintain the equipment when deployed. One successful iteration of each procedure will be performed.

(4) In any verification of a manual, the proponent must verify preventive maintenance checks and services (PMCS) by having target audience soldiers do each check. In addition, each PMCS check must be verified for proper sequencing. The PMCS procedures shall be arranged in a logical

sequence so that a minimum amount of time and motion is used without crew members interfering with each other. For verification, each PMCS step must be performed successfully once. This requirement applies to PMCS tables for COTS items as well as developmental materiel.

b. Procedures. Sample plans giving suggested procedures for the different types of verification are given in chapters 2 through 6. The sample plans are designed to cover the requirements of complex items/systems (combat tanks, artillery, aircraft, missiles, etc.). They may be tailored by the responsible agency to meet equipment requirements. Drafts of the verification plan shall be furnished for comment to agencies with primary interest. The final plan shall be furnished to primary agencies and agencies with special interests in order that they may program their participation.

1-5. Types of TM verification. There are five types of TM verification that can be performed. They are--

- a. TM verification as a separate event.
- b. Verification combined with TM validation.
- c. Verification combined with LD.
- d. Verification combined with TT II/UT II.
- e. Verification of COTS manuals and supplements.

1-6. Planning TM verification.

a. Early planning is not only basic but vital to a TM verification plan. Planning is required to comply with AR 25-30, paragraph 1-24k(2), which says the Commanding General (CG), AMC will ensure (for contractor-developed technical equipment publications) that the contract defines the roles of the contractor and the Army in validation and verification requirements. Thus, verification planning should start before the contract is written, to integrate verification with the rest of the TM plan and the ILS plan (AR 700-127). For TM verification integrated with TT II/UT II, planning should be coordinated with the outline test plan, test design plan, and detailed test plan (AR 70-10). Early planning also makes for better coordination of TM verification with interested agencies, including TRADOC, for requesting target audience troops.

b. Review and revise the verification plan to keep it current. As item development progresses, changes will occur in known data and in assumptions made to write the verification plan. New data will develop. Some factors of the plan often affected by changes are--

(1) Major changes in acquisition strategy which can be critical to TM verification. Such changes may make the proponent adjust or reselect the type of verification. The responsible agency may have to pick another method after planning for a given method has progressed some distance.

(2) Date and extent of availability of the preliminary technical manual (PTM).

(3) Verification performers. The verification shall be accomplished using military operational and maintenance personnel of the appropriate MOS and skill level of those expected to use and maintain the equipment when deployed. All performance of tasks will be monitored by experienced government subject matter experts (SME).

(4) Date and extent of availability of the equipment and whether it is a prototype or a production model. Prior to contract award, the proponent should coordinate with the contractor to ensure that equipment is available for verification. A production model is preferred. The equipment availability date may change often during development and the verification date may have to change accordingly. Equipment may be available full-time or only part-time because of tests or other activities which must be performed.

(5) Date and availability of common and special tools; test, measurement, and diagnostic equipment (TMDE), including automatic test equipment (ATE) with the associated test program sets (TPS), and built-in test (BIT); and, as required, calibration equipment. Proponent will coordinate with the appropriate agency/contractor to ensure that this equipment is on hand and available at the verification site to support the effort.

(6) Verification site and facilities (Government or contractor). When time allotted for verification is short for any reason, TM verification may have to be moved to another site or facility to complete the work.

(7) Time available for verification. This often varies widely before development is complete. Initial study of the development cycle should show what timeframe is available for verification. Lack of available time is no excuse for failure to produce a fully verified publication.

c. Give special attention to the development schedules of any new support equipment required by the program. This includes TMDE, ATE with the associated TPS, and BIT; calibration equipment; special tools and special-purpose kits for winterization, desert, or tropical employment; mounting of weapons, etc. Changes in availability dates may require alterations in the verification plan.

d. Coordinate with interested agencies as early as possible and keep them informed about the equipment publications program. Keep up this coordination throughout the equipment development and include the equipment contractor.

e. Ensure as far as possible that a production model of the equipment is reserved for TM verification. Use of a prototype model to verify publications written to the production configuration will not produce a 100 percent verified manual and to complete the verification, the proponent will have to make arrangements to use a production model at another time and place.

f. The verification process is historically time-consuming. Apart from being subject to change from program redirection, time must be managed closely to prevent avoidable delays. Planning must take into account logistic support analysis record (LSAR) task times (when such times become available) and maintenance allocation chart (MAC) times when these become available.

g. TM verification ordinarily requires some degree of contractor support. The amount of this support shall be determined as early as possible in the life of the contract.

h. Table 1-1 presents some factors to be considered in selection of the type of verification to be used.

i. Elements used in each type of verification include--

- Publication (partial or complete) to verify.
- Equipment available to verify the publications.
- Approved verification plan.
- Participating agencies (primary or special interest).
- Government verification team.
- Contractor support.
- Government support.
- Facilities and materials.
- Verification methods.
- Accept/reject criteria.
- Coordination meeting.
- Performers (target audience soldiers, skilled military mechanics, Government civilian mechanics, contractor technicians).
- Systems support package (SSP).
- Common and special tools and equipment; TMDE not in the SSP.
- Milestones and schedules.
- Forms/records/reports.
- Final report.

j. Coordination shall be made with each of the following agencies for each type of verification:

- AMC Major Subordinate Commands (MSC)
- U.S. AMC Materiel Readiness Support Activity (MRSA)
- Military Traffic Management Command (MTMC)
- Product/Program/Project Manager's Office (PMO)
- Service Schools
- TRADOC
- Contractor

Also for verification combined with TTII/UTII:

- Logistics Evaluation Agency (LEA)
- Operational Test and Evaluation Agency (OTEA)
- U.S. Army Test and Evaluation Command (TECOM)

Table 1-1. Factors to Consider in Determining Type of Verification

Factor	Yes	No
Are there any limitations imposed on verification (time, funding, space, personnel, equipment, tools, or TMDE)?		
If initial planning is in process, has a timeframe been set aside for verification?		
Will preliminary technical manual (PTM) be complete by start of verification?		
Will PTM have been validated by start of verification?		
If PTM will not be validated, will tasks have undergone an engineering review for accuracy (by contractor)?		
Are target audience troops available to verify tasks?		
Will verification be 100 percent performance of all tasks?		
Will verification be performed on prototype equipment?		
Will equipment be available at <ul style="list-style-type: none"> <li>a. Contractor's site?</li> <li>b. Government site?</li> </ul>		
Will facilities be available at <ul style="list-style-type: none"> <li>a. Contractor's site?</li> <li>b. Government site?</li> </ul>		
Will the system support package (SSP) be complete and available at the start of verification?		
Will common and special tools and equipment not in the SSP (including calibration equipment) be available for verification?		
Will verification require contractor support?		
Does the contract publications portion provide for TM verification and contractor support?		

1-7. TM verification as a separate event. A team representing the proponent and interested AMC agencies will work with TRADOC agencies and target audience soldiers to verify all operating and maintenance procedures using a production end item. TRADOC is responsible for furnishing target audience soldiers and facilities on request. See chapter 2 for a typical plan.

1-8. TM verification combined with other events.

a. Combined validation/verification.

(1) Combined validation/verification is the least preferred method because it is time-consuming and places the responsibility of the effort on the Government, not the contractor. The combination is also usually difficult contractually and requires close and continuing coordination with the contracting officer or plant representative and the contractor. When the agency with logistics responsibility considers combining TM verification with validation, it is usually because of compressed development.

(2) If soldiers are not scheduled to do the work, there must be a clear understanding between Government agencies and the contractor on who is to do the work: Government civilian personnel, contractor technicians, or contractorhired civilians to perform soldier tasks; however, a TRADOC SME must observe task performance. New or revised publications shall be hands-on verified. See chapter 3 for a typical plan.

b. Combined verification and LD.

(1) Regulatory guidance generally assumes the LD will be conducted during the full-scale development phase of materiel acquisition. AMC-R 700-15 states that LD should be completed at least 6 months before the start of TT II (was developmental test (DT) II). This guidance should be observed if possible, but if compressed development prohibits having LD at the proper time, it may be combined with TM verification.

(2) Because both verification and LD involve some disassembly of the equipment, they may be combined. However, LD objectives include many things beside technical publications. If LSAR is to be updated at LD, SMEs will determine corrections needed for logistics support analysis (LSA) in addition to performing functions cited in AMC-R 700-15.

(3) When LSAR is checked, there may be two separate action schedules prepared - one for verification of TM tasks and the other for verification of LSAR, by tasks. The two will not match perfectly and precedence must be agreed on before work starts. If possible, the schedules should be combined to reflect a single order of tasks covering all tasks in the TMs and pertinent LSAR tasks. The order of performance should minimize repetition of tasks such as opening/closing access doors or removing/installing parts/assemblies for access to other parts/assemblies. All arrangements for verification should be coordinated with interested agencies as far in advance as possible. See chapter 4 for a typical plan.



c. Verification combined with TT II/UT II. Before detailed planning of this type of verification, the logistics manager responsible for publications shall reach an agreement with testing agencies on what will and will not be done to verify publications during TT II/UT II. This includes--

(1) Actions of TM verification observers while equipment is being operated and maintained during TT II/UT II.

(2) Hours that equipment will be available during TT II/UT II to perform TM task verifications.

(3) Adequate facilities (work area, office space and furniture, telephone service).

(4) Availability of end item of equipment to be used during verification.

(5) Tools and support equipment (common and special tools and support items, including tool sets/kits/outfits authorized to maintain the item or its auxiliary equipment or authorized to the MOSs doing the work).

(6) Expendable supplies and materials.

(7) Schedule of events for TT II/UT II and TM verification. This shall be a single master schedule as far as the two events can be joined.

(8) Agreement on whether the equipment undergoing test may be disassembled for verification of TM maintenance tasks, aside from any unscheduled maintenance required in the normal course of TT II/UT II.

(9) Confirmation that the equipment has been reserved at the TT II/UT II site for a time after completion of TT II/UT II. This time will be used to complete verification of TM tasks.

(10) Availability and use of TT II/UT II military personnel for task verification, if that is desired.

(11) Arrangement for troop housing, messing, etc., if target audience troops are to verify TM tasks. Arrangements for troop control at the verification site. See chapter 5 for a typical plan.

#### 1-9. TM Verification of COTS manual supplements.

a. Although the preferred method of verification is having target audience soldiers do all procedures on a production item, the proponent usually does not have the time needed when working with a COTS manual supplement. The need for quick completion is probably the most common element in any verification of supplements. Almost always, the fielding date of the commercial item is the prime factor. This governs the date that the proponent MSC must include verified supplements with the COTS manuals being issued with equipment. Such a structure requires the proponent command publications representatives to coordinate closely with the PMO, appropriate TRADOC schools, or other offices responsible for logistics acquisition.

b. Other than complete performance of all procedures, options in verification of COTS manual supplements include--

- (1) Verification of procedures for selected components.
- (2) Verification of procedures for selected tasks.
- (3) \*Desk-top\* verification of procedures.
- (4) Government witnessing of validation of contractor-prepared supplementary data.

c. In general, the proponent command publications representative will face the same problems noted in paragraph 1-8a above, with the added problem of little time. Continuing, intense coordination with the responsible logistics manager and interested agencies will produce verified supplementary data for issue with the materiel.

## CHAPTER 2

### OUTLINE

#### TYPICAL TECHNICAL MANUAL VERIFICATION PLAN

##### Front matter

Cover with date, number(s) of publications to be verified, item nomenclature, preparing agency, and contractor's name and contract number.

Table of contents with section number, title, and page number.

##### Section I. Introduction.

2-1. General. Scope of verification.

2-2. Purpose and objectives.

2-3. Provisions. As appropriate, include a summary of pertinent contract provisions. List any limitations which must be imposed on this effort, (time permitting only verification of certain vital tasks, funding, unavailability of any tools/test equipment, limited space available, number of personnel from interested agencies, etc.). Verification efforts will be preceded by a coordination meeting to consolidate Government comments. State whether more than one end item will be available and whether multiple shift operations are being considered.

##### Section II. Participating agencies.

2-4. Agencies with primary interest. List them. State whether each agency will have a member voting on the verification team in case verification of a task is not agreed on unanimously. Invite each interested responsible MSC to take part.

2-5. Agencies with special areas of interest. List the agencies and their special areas of interest, such as MTMC for air/sea/rail transport of equipment, etc.

2-6. Responsibilities. Each agency is to provide SMEs as required, target audience soldiers/MOS-qualified experienced soldiers (if they are to perform the verification), observers, monitors, etc. State which agency will chair the effort (normally the proponent command publications representative).

##### Section III. Verification team.

2-7. Description. List all agencies' represented on the team. State areas of expertise required. If lack of time requires that more than one task be performed at a time, discuss any proposed division of team members for task observation.

2-8. Member responsibilities. According to the preestablished verification concept, soldiers, or Government civilians perform tasks selected for verification. In certain circumstances, the Government may require the work to be done by contractor technicians. Observers and monitors watch task performance and check for accuracy, completeness, and consistency with the MAC and repair parts and special tools list (RPSTL), plus conformance to the requirements of any agencies with special areas of interest.

2-9. Notification of meetings. The agency chairing the effort will notify interested agencies at least xx days before the meeting, giving the location, TM(s) or portion(s) to be verified, proposed working hours, areas of emphasis, whether Government quarters are available (if the effort will be on a Government installation), telephone numbers of points of contact (commercial and Defense Switched Network (DSN)), etc.

2-10. Visitors. State any special policies on or responsibilities of visitors (persons not members of the team). If a verification effort is being conducted on an accelerated schedule, the chairing agency may decide to restrict visitors' activities and access to the work area. This paragraph shall outline any restrictions or other special provisions concerning visitors.

#### Section IV. Contractor support.

2-11. Description. The Government may require the contractor to support the verification effort. Any such requirements shall be contractual. Carrying out these contract provisions will require close and continuing coordination with the contracting officer and/or Government plant representative. This paragraph shall state arrangements which have been made (or are to be made) to obtain all needed support. If TM verification is at a site(s) other than the contractor's plant, state requirements for contractor shipment of the equipment, deprocessing, setup at other site(s), any reprocessing for further shipment, etc.

2-12. Responsibilities. List contractor support responsibilities which may include--

a. Facilities--work area and storage space, adequate lighting, men's and women's restrooms, parking, a vacant area which may be used as a holding area for target audience troops, adequate office space, telephone service with a line outside the contractor's plant.

b. Plant equipment--work tables, benches, lift trucks, winches/hoists/traveling cranes, etc.

c. Office equipment--desks, chairs, file cabinets, personal computers, telephones, office copier, paper, miscellaneous small supplies, etc.

d. Personnel--Verification task performers, if not provided by the Government, and technical personnel to serve as advisers to the Government effort.

e. End item of equipment and any auxiliary equipment/TMDE, including ATE with the associated TPS and BIT equipment being made or purchased by the contractor for this end item.

f. Technical assistance. State whether contractor technical personnel are to--

(1) Deprocess the end item, prepare it for operation, and maintain it during TM task verification.

(2) Set up the equipment for individual tasks by placing the equipment in the status prescribed in the task's initial setup. This could require equipment partial disassembly, setting electrical switches and circuits in prescribed states, etc.

(3) Prepare the equipment for shipment, if required, after completion of verification.

(4) Provide repair parts, tools, kits, expendable supplies, and components to support verification.

(5) Provide publications support by changing task text and illustrations to correct tasks found to be inadequate or in error.

#### Section V. Government support.

2-13. Responsibilities. If the TM verification is to be conducted at a Government installation, responsibility for facilities, plant and office equipment will shift from contractor to government. List these responsibilities by participating agencies (PMO, TRADOC, MRSA, MSCs (publications, maintenance, etc.), as well as any other items (specific tools, support equipment, and TMDE items) which are government's responsibility. With this listing, requirements for support of the TM verification should be completely covered.

#### Section VI. Coordination meeting.

2-14. General. Before the start of any verification work, the agency chairing the effort shall call a coordination meeting for representatives of all government agencies with primary and special areas of interest. Invite contractor(s) to send representatives, as required. Use teleconferencing whenever possible to reduce travel costs. The verification chairman shall briefly review the verification process and responsibilities of participants, in addition to conducting a desk review of the PTM.

#### Section VII. TM verification.

##### 2-15. Verification methods.

a. Desk (table-top) review.

- b. Hands-on verification.
- c. Simulation.
- d. Combination of two or more of the above.

2-16. Desk (table-top) review.

- a. Maintenance manuals.

(1) Coordination meeting. Initial desk review shall be performed by the proponent MSC and other participating/interested agencies prior to the coordination meeting.

(a) Proponent shall send out the manuscript for review at least 30 days before the coordination meeting. Agencies represented at this meeting are expected to hand-carry their comments. Others may mail, datafax, or electronically mail (e-mail) comments to the proponent for review and inclusion in the master copy of the TM(s).

(b) Before the scheduled review, the chairing agency shall call a meeting to coordinate comments from agencies taking part in the verification. The meeting should be held at the hands-on verification site for easy reference to the equipment (which should be in place). Comments agreed upon shall be annotated in the verification master copy and performer's copies before the hands-on verification.

(2) Points of review.

- (a) Front matter and appendixes.
- (b) Operating and maintenance instructions.
- (c) Checklists.
- (d) Illustrations.
- (e) Schematics and wiring data.
- (f) Descriptive data and theory of operation.
- (g) Components of end item (COEI), basic issue items list (BIIL), additional authorization list (AAL), and expendable/durable supplies and materials list (ESML).
- (h) Application of reliability-centered maintenance (RCM) strategy to PMCS.
- (i) Correlation of the MAC, RPSTL, and maintenance instructions for sequence, proper maintenance level, correct nomenclature, and mutual support.

(j) Review the RPSTL against the narrative manual and MAC for proper source, maintenance, and recoverability (SMR) codes.

(k) Review all products for conformance to content and format requirements of applicable specifications.

(3) Markup of master copy. The chairing agency will designate a specific agency (usually itself or the contractor) to maintain a master copy of the manuscript containing all approved Government comments made during desk review. This marked up master becomes the basis for providing corrective comments to the contractor.

b. RPSTL. The RPSTL shall be reviewed during the desk review of its companion maintenance manual(s). This review should make sure--

(1) SMR codes are correct and complete.

(2) Section I - Introduction paragraphs are correct and complete.

(3) All repair parts are illustrated.

(4) RPSTL artwork is compatible with maintenance manual artwork.

(5) National stock numbers (NSN) are assigned to items which should have them.

(6) Part numbers, commercial and government entity (CAGE) codes, nomenclatures, and quantities are accurate.

## 2-17. Hands-on performance.

a. Schedule. Set the schedule plan (e.g., an 8-hour day, 5-day week, first and last days of effort are travel time, etc.). Attach specific schedule(s) as appropriate.

b. Performance requirements.

(1) State what will and will not be done. Explain who on the team can approach the task performance area.

(2) Note that troubleshooting will ordinarily require special instructions. State how to treat verification of troubleshooting trees/processes. Preferably, troubleshooting tasks should be performed before disassembly/repair tasks because of possible damage to equipment during teardown. This also agrees with the maintenance logic process of troubleshoot, disassemble, repair, assemble, and test.

(3) There will be no destructive teardown to create faults for troubleshooting or maintenance. Use an appendix to list nondestructive faults to be inserted in the equipment for troubleshooting. For guns/weapons, there is usually no live firing.

c. Target audience briefing. If target audience troops or other performers are to be used to verify procedures, present a briefing covering the purpose of the verification; administrative instructions; safety; assuring troops or performers that the test is of the publication, not them; how tasks will be verified; and how/when to ask for help with the task.

d. Maintenance of the equipment. Often, the equipment will require maintenance during the verification. State what agency (Government or contractor) is responsible for this maintenance, to include a return to ready-for-issue condition.

e. Procedure. State the procedure verification is to follow. The target audience soldier(s) or other person(s) doing the work is expected to--

(1) Receive the task assignment.

(2) Read the procedure.

(3) Secure any items (tool.), equipment, TMDE, and mandatory replacement parts) cited in the set-up portion of the task.

(4) Perform the task.

(5) Perform any required follow-on tasks.

All (100 percent) operating and maintenance procedures, including PMCS, lubrication, and troubleshooting, will be performed with no information other than that contained in the task at hand and the manual for any TMDE. There will be no coaching unless personnel safety or potential damage to equipment is imminent. During procedure performance, the designated SME cross-checks RPSTL, MAC, TM appendixes, schematics, supply catalogs of tool sets/kits/outfits, etc., for accuracy and appropriateness.

f. Troubleshooting performance. This usually begins with insertion of a nondestructive fault. The soldier is told there is something wrong with the equipment, referred to the manual's troubleshooting instructions (or the master symptoms list, if one is included in the manual) to start a troubleshooting task, and is instructed to locate the fault. The soldier then tries to locate the problem, using any authorized test equipment. (With aircraft, missile, and some combat vehicle troubleshooting, fault insertion breakout boxes are used to simulate faults.)

g. Use of target audience troops. If target audience soldiers do the task verification, the TRADOC SME usually assigns soldiers in an ordered sequence to prevent deliberate test bias, such as could occur if an above-average soldier was assigned all the difficult tasks and a below-average soldier was to receive all easy tasks. An SME should record task assignments and watch the order in which soldiers perform tasks. If desired, the SME (or if so agreed, the contractor) will obtain setup items and perform setup conditions so the target soldier need not do so.



2-18. Simulation. Simulation is to be used in lieu of actual performance of a procedure only when the equipment would be damaged or live firing of weapons would be required, and then only when approved by the contracting activity by its approval of the verification plan.

2-19. Combination. As required, the above methods may be used in any combination approved by the contracting activity and agreed to by interested agencies.

2-20. Rejection criteria. State the standards by which a task may be rejected. Also, state proposed methods of attempting to resolve problems with tasks before rejection. This statement should set out how long the contractor has (in minutes) to rework the problem task before it must be sent back to the main writing facility. The decision to reject should reflect a consensus. If a consensus cannot be reached, the chairman decides. (Preferences of the technicians performing the verification shall not be cause for rejection.)

a. Team members, target audience soldiers, and contractor personnel may recommend revision of a task if such revision will eliminate unnecessary work, cut performance time, eliminate extra tools, enhance safety, or otherwise significantly improve task performance. Recommendations are to be made to the team leader who will assess the recommendation and coordinate it within the verification team for disposition.

b. Usually, a procedure is rejected when it cannot be performed without a major rewrite or illustration revision (major errors of procedure or configuration/cannot be understood), because of incompleteness, potential safety hazard, or because it would involve damage to equipment.

2-21. Handling of rejected material. State the process for rework of any rejected material. Usually a rejected task will be returned to the contractor (at the verification site or to the contractor's facility) with a statement of what is wrong. The contractor is to return the reworked material within a previously agreed-on time. The reworked material will be verified. If time does not permit reverification at the verification site, the contractor shall provide a certificate of validation for the rejected material with delivery of the final reproducible copy (FRC).

2-22. Forms, records, and reports. State what forms are to be used to record verification of tasks, comments, and completion of the verification process. Refer to an appendix for samples.

#### Section VIII. Target audience soldiers

2-23. Description. If this section is used, describe target audience soldiers by MOS and title. Description is to be obtained from the proponent TRADOC school and is generally an extract of AR 611-201, giving for each MOS--

- a. MOS number and title.
- b. Physical qualifications and aptitude area.

- c. Level of military experience.
- d. Skills and knowledges.

2-24. Qualifications. State in brief whether soldiers have completed advanced individual training (AIT) for MOS assigned, whether they have received any training on the equipment covered by the TM(s) being verified, and if those soldiers' rotation through this group will coincide with availability of other target audience soldiers completing AIT and becoming eligible for temporary duty as target audience troops.

Section IX. Final report.

2-25. Procedure. When verification is complete, the chairing agency will prepare a final report listing--

- a. Publications verified.
- b. Any portions of tasks not verified, with reasons.
- c. Findings concerning TMs verified (e.g., easily verified by target audience soldiers, many tasks had maintenance level changed, a number of tools had to be changed to other tools, certain TMDE was not available so certain troubleshooting procedures were not verified, etc.).
- d. Conclusions/lessons learned.
- e. Recommendations.

The report will be provided for concurrence to all agencies having a voting member on the team. The chairman also may wish to have the marked up master copy signed or initialed on the cover by representatives of all such agencies as indication of concurrence and positive identification of the master copy. A copy of the final report shall be provided to the contractor.

Appendix\_\_\_\_. Verification schedules. List by TM.

- 1. Equipment covered, by proper nomenclature and NSN.
- 2. Personnel to verify procedures. Target audience soldiers, military skilled technicians, Government civilian mechanics, contractor personnel, or a combination. If military, give MOS and skill level required.
- 3. Tasks to be verified. List should include all operator's, maintenance and troubleshooting tasks. If possible, index tasks to the appropriate MOS, tools, test equipment, and location in the TM.
- 4. Validated TM due to the Government on (date).
- 5. Desk review begins (date) and closes (date).

6. Coordination meeting (date) to (date).

7. Verification (date) to (date), inclusive.

Appendix \_\_\_\_\_. Forms, records, and reports. Provide samples of all forms, records, and reports to be used during TM verification.

Appendix \_\_\_\_\_. Contractual regulatory requirements (if desired). List the military specifications (and any amendments) called out by the contract for preparing the publications to be verified. List by number, date, and title. If the contract cites other regulatory documents concerning the publications, cite these as well.

Appendix \_\_\_\_\_. Waivers to regulatory requirements (if desired). List waiver letters, agreements on TM style, minutes of in-process reviews (IPR) citing directions to the contractor, and other material influencing development of the TM series involved. Avoid including unnecessary material.

Appendix \_\_\_\_\_. Government-furnished material. List any tool sets/kits/outfits; common or special tools or equipment; TMDE; and any other Government property provided to the contractor for this verification. If the item or material will be used by target audience soldiers/technicians during verification, mark the line with an asterisk (\*).

CHAPTER 3  
TYPICAL PLAN FOR COMBINED VALIDATION/VERIFICATION  
OF TECHNICAL MANUAL

Front Matter

Cover with date, equipment nomenclature, contractor's name and contract number, and agency preparing the plan.

Table of contents with section number, title, and page number.

Section I. Introduction.

3-1. General. Scope of validation/verification.

3-2. Purpose and objectives.

3-3. Provisions. As appropriate, include a summary of pertinent contract provisions. List any limitations which must be imposed on this effort (time permitting only verification of certain vital tasks, funding, unavailability of any tools/test equipment, limited space available, number of personnel from interested agencies, etc.). Verification efforts will be preceded by a coordination meeting to consolidate Government comments. State whether more than one end item will be available for validation/verification of tasks and whether multiple-shift operations are being considered.

Section II. Participating agencies.

3-4. Agencies with primary interest. List them. State whether each agency will have a member voting on the team in case verification of a task is not agreed to unanimously. Invite each interested responsible MSC to take part.

3-5. Agencies with special areas of interest. List the agencies and their special areas of interest, such as MTMC for air/sea/rail transport of equipment, etc.

3-6. Responsibilities. Each agency is to provide SMEs as required, target audience soldiers/MOS-qualified experienced soldiers (if they are to perform validation/verification), observers, monitors, etc. State which agency will chair the effort (normally, the proponent command publications representative).

Section III. Government team.

3-7. Description. The proponent Government agency (AMC MSC, etc.) chairs the team. Agencies with primary interest (MSC, TRADOC, service schools, MRSA, etc.) provide SMEs, technical writers, illustrators, and other members, as appropriate. Primary interest agencies will ordinarily have a vote on the team. Agencies with special areas of interest (such as the MTMC, etc.) should provide SMEs and observers, as required, and ordinarily will not have a vote on the team.

3-8. Member responsibilities. TRADOC furnishes target audience troops and facilities for the effort on request if the request was made far enough in advance for scheduling troops and space. All team members and observers are expected to witness task validation and verification and comment, if appropriate, to resolve technical or publications problems.

3-9. Notification of meetings. The agency chairing the effort will notify interested agencies at least xx days before the meeting, giving the location, TM(s) or portion(s) to be verified, proposed working hours, areas of emphasis, whether government quarters are available (if the effort will be on a Government installation), telephone numbers of points of contact (commercial and DSN), etc.

3-10. Visitors/observers. State any special policies on or responsibilities of visitors (persons not members of the team). If the effort is being conducted on an accelerated schedule, the chairing agency may decide to restrict visitors' activities and access to the work area. This paragraph shall outline any restrictions or other special provisions concerning visitors.

#### Section IV. Contractor support.

3-11. Description. The Government may require the contractor to support the verification part of the effort. Any such requirement shall be contractual. Carrying out these contract provisions will require close and continuing coordination with the contracting officer and/or Government plant representative. This paragraph shall state the arrangements which have been made (or are to be made) to obtain all needed support. If TM validation/verification is at a site(s) other than the contractor's plant, state requirements for contractor shipment of the equipment, deprocessing, setup at other site(s), any reprocessing for further shipment, etc.

3-12. Contractor responsibilities. As required by contract, the contractor will distribute copies of publications to be validated/verified, provide technical assistance through SMEs/writers/illustrators, site(s) for validation and verification, repair parts support, tools, equipment, correction of draft publications as required (spell out in detail), conducting or performing validation as required, etc. If validation/verification is at a site(s) other than the contractor's plant, state requirements for shipment, deprocessing, and set up of the item.

#### Section V. Facilities and materials.

3-13. Contractor responsibility. Refer to paragraph 2-12.

3-14. Government responsibility. Again, depending on the contract and the Government's intended method of verification, list facilities and materials to be furnished by the Government. This list should complement and complete the contractor responsibility list so neither validation nor verification is affected by a lack of facilities or materials.

## Section VI. Coordination meeting.

3-15. General. Before the start of any verification work, the agency chairing the effort shall call a coordination meeting for representatives of all Government agencies with primary and special areas of interest. Invite contractor(s) to send representatives, as required. Use teleconferencing whenever possible to reduce travel costs. The verification chairman shall briefly review the verification process and responsibilities of participants, in addition to conducting a desk review of the PTM.

## Section VII. Validation methods.

3-16. Hands-on performance. State that operating and maintenance procedures, including PMCS, lubrication and troubleshooting, will be performed with no other information than that given in the PTM. No participation or coaching by a monitor or other verification team member will be permitted before or during task performance, unless personnel safety or potential equipment damage is involved.

3-17. Desk (table-top) review. Review all material for conformance to content and format requirements of applicable military specifications. This includes--

- a. Front matter and appendixes.
- b. Operating and maintenance instructions.
- c. Checklists.
- d. Illustrations.
- e. Schematics.
- f. Wiring diagrams/wire run lists.
- g. Descriptive information/theory of operation.
- h. Indexes.
- i. COEI.
- j. BIIL.
- k. AAL.
- l. ESML.
- m. Application of RCM strategy to PMCS.
- n. Correlation of the maintenance instructions, MAC, and RPSTL for sequence, proper maintenance level, correct nomenclature, and mutual support.

o. Review the RPSTL, MAC, and maintenance instructions for proper SMR codes of repair parts.

3-18. Simulation. Simulation is to be used in lieu of actual performance of a procedure only when the action would create a safety hazard or equipment would be damaged, and then only when approved by the contracting activity by its acceptance of the validation plan and schedule.

3-19. Combination. As required, the above methods may be used in any mix approved by the contracting activity and agreed to by interested agencies.

#### Section VIII. Validation performance.

3-20. Description. Set out who will accomplish validation and what skill level is required, whether contractor personnel, Government mechanics, or target audience troops. State that a master set of draft publications will be maintained and what agency (or the contractor) will do so. Outline the path of action for correction of errors in text and illustrations. State how differences of opinion between interested agencies will be resolved and by whom. Require a safety briefing before start of validation.

3-21. Conduct of task validation. Outline the validation of a typical task. This includes a safety briefing, if necessary, locating and preparing needed tools/test equipment/expendable supplies and materials as called for by the procedure. Include warnings to stop the procedure if a safety hazard or an unsafe action is about to occur. State that the task action will be timed (for comparison with MAC times).

3-22. Validation criteria and action if a task does not validate. Give criteria for validation of tasks, including comparison of performance time with MAC-allotted time. If a task does not validate the first trial, state what the contractor is to do, including rewrite/rework of text and art and revalidation. Include provisions for on-the-spot correction of minor errors

Section IX. Validation acceptance/rejection criteria.

3-23. Contractor responsibility. The contractor should have a definite set of standards for acceptance or rejection of each task. Example for full acceptance: Task is performed by the assigned person with no changes required in text or art. Tasks may be accepted after on-the-spot correction of minor errors. (Define \*minor errors.)

The team should reject the task when it obviously involves a safety hazard or equipment damage, or when the task can't be performed without major rework. Rejected tasks are to be revised and revalidated.

#### Section X. Validation forms, records, and reports.

3-24. Forms. State what contractor or Government forms will be used to record validation and verification results. Refer to the appropriate appendix.

3-25. Records and reports. State what part of the contractor's organization will maintain validation records. Give the schedule by which the Government will require reports, if reports are required.

Section XI. Milestones and schedules.

3-26. Milestones. Contractor's overall schedule for this validation/verification plan, beginning with the first draft of the plan, through forwarding of final reports. Incorporate Government-developed milestones.

3-27. Schedules. Contractor's schedule for each publication validation by start/complete dates. Reference detailed schedules in an appendix.

Section XII. Government verification.

3-28. Procedures. The proponent Government agency (AMC MSCs, etc.) sets out the Government's scope of action during this effort. Depending on type of verification agreed upon by interested agencies, this effort can range from witnessing contractor validation to providing target audience soldiers at the contractor's site to perform the combined validation/verification. If target audience soldiers are picked to do tasks, describe how soldiers are rotated through this group to prevent learning build-up, etc.

Section XIII. Target audience soldiers (if used).

3-29. Description. If this section is used, describe target audience soldiers by MOS and title. Description is to be obtained from the proponent TRADOC school and is generally an extract of AR 611-201, giving for each MOS--

- a. MOS number and title.
- b. Physical qualifications and aptitude area.
- c. Level of military experience.
- d. Skills and knowledges.

3-30. Qualifications. State in brief whether soldiers have completed AIT for MOS assigned, whether they have had any training on the equipment covered by the TM(s) being validated/verified, and if those soldiers' rotation through this group will coincide with availability of other soldiers completing AIT and becoming eligible for temporary duty as target audience soldiers.

Section XIV. Final report.

3-31. Procedure. See paragraph 2-25.

Appendixes. See appendixes at the end of chapter 2.



## CHAPTER 4

### TYPICAL PLAN FOR COMBINED TECHNICAL MANUAL VERIFICATION AND LOGISTICS DEMONSTRATION

#### Front Matter

Cover with date, equipment nomenclature, contractor's name, and contract number. Table of contents with section numbers, title, and page numbers.

#### Section I. Introduction.

4-1. General. Scope of verification/LD.

4-2. Purpose and objectives.

a. TM verification.

b. LD.

4-3. Provisions. As appropriate, include a summary of pertinent contract provisions. List any limitations on TM verifications (time permitting only verification of certain vital tasks, etc.) and constraints on LD (funding, unavailability of any tools/test equipment, deletion of tasks, limited space available, number of personnel from interested/participating agencies, etc.). TM verification efforts will be preceded by a coordination meeting to consolidate Government comments. State whether more than one end item will be available and whether multiple shifts are being considered.

#### Section II. Participating agencies.

4-4. Agencies with primary interest. State whether each agency will have a voting member on the TM verification team or on the LD team in case verification of a task is not agreed on unanimously. Invite each interested responsible MSC to take part in selecting/monitoring tasks to be verified.

4-5. Agencies with special areas of interest. List the agencies and their special areas of interest, such as MTMC for air/sea/rail transport of equipment, etc.

4-6. Responsibilities. Each agency is to provide SMEs as required, target audience soldiers/MOS-qualified soldiers (if they are to do the verification/LD), observers, monitors, etc. State which agency will chair the effort (normally the proponent command publications representative).

#### Section III. Government team.

4-7. Description. (Refer to paragraph 3-7.) List skills required for both TM verification and LD efforts. Describe LD team division into task groups - state whether groups are organized by equipment subsystems or logistics

support items, or a mixture of both. Type, size, and complexity of the system being considered will deeply affect task group quantity and organization.

4-8. Member responsibilities.

a. TM verification. According to the preestablished verification concept, soldiers or Government civilians perform tasks selected for verification. In certain circumstances, the Government may require the work to be done by contractor technicians. Observers and monitors watch task performance and check for accuracy, completeness, and consistency with maintenance allocation chart and RPSTL, plus conformance to requirements of any agency with a special area of interest.

b. LD. List responsibilities of team members including technicians, equipment specialists, quality control specialists, etc. Technicians are to service, inspect, remove/install items, etc. Equipment and quality control specialists are to observe the technician's operation, record discrepancies, and suggest proposed changes to correct problems, collect data on task performance time, etc.

4-9. Notification of meetings. State that the agency chairing the effort will notify interested agencies at least xx days before the meeting, naming the location, the publication(s) or portion(s) to be verified/undergo LD, proposed working hours, areas of emphasis, whether Government quarters are available (if the effort will be on a Government installation), telephone numbers of points of contact (commercial and DSN), etc.

4-10. Visitors/observers. State any special policies on or responsibilities of visitors (persons not members of the team). If a TM verification/LD effort is accelerated, the chairing agency may decide to restrict visitors' activities and access to the work area. This paragraph shall outline any restrictions or other special provisions concerning visitors not officially part of either effort.

Section IV. Contractor support.

4-11. Description. The Government may require the contractor to support the TM verification/LD. Any such requirement must be contractual and will require close and continuing coordination with the contracting officer and Government plant representative, if one has been appointed. This paragraph shall state arrangements which have been made or are to be made to obtain all needed support. If TM verification/LD is at a site(s) other than the contractor's plant, state requirements for contractor shipment, deprocessing, setup of equipment at the other site(s).

4-12. Responsibilities. List contractor support responsibilities which may include--

a. Facilities - work area and storage space, adequate lighting, men's and women's restrooms, parking, a vacant area which may be used as a holding area for target audience troops if they are doing the verification, adequate office space, telephone service with a line outside the contractor's plant.

b. Plant equipment - work tables, benches, material handling equipment, winches/hoists/traveling cranes, etc.

c. Office equipment - desks, chairs, file cabinets, personal computers, paper, telephones, and small office supplies, etc.

d. Personnel - technicians and technical personnel to advise during the Government effort.

e. End items of equipment and any auxiliary equipment/TMDE, including ATE with the associated TPS and BIT equipment being made or bought by the contractor for the end item.

f. Technical assistance. State whether contractor technical personnel are to--

(1) Deprocess the end item and prepare it for TM verification/LD. (This requirement usually applies if the end item has been shipped to a Government site.)

(2) Set up the equipment for individual tasks by placing it in the condition prescribed in the task's initial setup. This could require partial disassembly of the item, setting electrical switches in prescribed positions, etc.

(3) Prepare the equipment for special logistics demonstrations (such as air/sea/rail transportability) by partial disassembly and/or special packaging and packing.

(4) Preparing the equipment for shipment, if required, after completion of TM verification/LD.

g. SSP. List elements of the SSP the contractor is-required to furnish for this effort, which may include--

(1) Technical publications (lubrication order, operator's manual, unit/ direct and general support maintenance manuals, RPSTL, warranty technical bulletins for end item of equipment and any of its major assemblies under separate warranty; and publications on auxiliary equipment; TMDE; and calibration equipment).

(2) Technical data (LSAR, any applicable ILS subplans such as for TMDE, drawings, and other pertinent engineering plans, reports, and documents).

(3) Tools and support equipment (common and special tools and support items, including tool sets/kits/outfits authorized to maintain the item or its auxiliary equipment, or authorized to the MOS(s) doing the work).

(4) TMDE and calibration equipment (common and peculiar TMDE and calibration equipment).

(5) Items on the authorized stockage list/prescribed load list (ASL/PLL).

(6) Items on the COEI and BIIL lists.

(7) Items on the AAL.

(8) Special purpose kits. (Winterization, flotation, litter, weaponization, etc.)

(9) Items on the ESML. (See applicable TM ESML)

#### Section V. Government support.

4-13. Responsibilities. If the TM verification/LD is to be conducted at a Government installation, the Government will have responsibility for facilities, plant, and office equipment. List these responsibilities, as well as any portion of the SSP (specific tools, support equipment, and TMDE items) which are the Government's responsibility. With this listing, requirements for support of the TM verification/LD should be completely covered.

#### Section VI. Coordination meeting.

4-14. General. Before the start of any work, the agency chairing the effort shall call a coordination meeting for representatives of all Government agencies with primary and special areas of interest. Invite contractor(s) to send representatives, as required. Use teleconferencing whenever possible to reduce travel costs. The verification chairman shall briefly review the verification process and responsibilities of participants, in addition to conducting a desk review of the PTM.

#### Section VII. TM verification.

##### 4-15. Verification methods.

- a. Desk review.
- b. Hands-on verification.
- c. Simulation.
- d. Combination of the above.

##### 4-16. Desk (table-top) review.

- a. Maintenance manuals.

(1) Coordination meeting. Initial desk review shall be performed by the proponent MSC and other participating/interested agencies prior to the coordination meeting. Proponent shall send out the manuscript for review at least 30 days before the meeting. The meeting should be held at the site of verification/LD, for easy reference to the equipment (which should be in place).

(a) Agencies represented at the meeting will ordinarily hand-carry their comments to the meeting for inclusion in the publications. Other agencies may mail, datafax, or e-mail comments to the proponent for review and inclusion in the master copy of the TM. Agencies will review all comments.

(b) Comments agreed on by agencies shall be annotated in the master copy and the performers' copies before any hands-on verification of the tasks.

(2) Points of review. Review instructions, checklists, illustrations, schematics, wiring data, descriptive data, indexes, theory, COEI, BIIL, AAL, ESML, application of RCM strategy, and the correlation of the MAC, maintenance instructions, and RPSTL for sequence, proper maintenance level, correct nomenclature, and mutual support. Review the RPSTL against the MAC and maintenance instructions for accurate SMR codes. Review all products for conformance to content and format requirements of applicable specifications.

(3) Mark-up of master copy. The chairing agency will designate a specific agency (usually itself or the contractor) to maintain a master copy of the publication containing all approved Government comments. This becomes the basis for providing corrective instructions to the contractor.

b. RPSTL. The RPSTL for a designated level of maintenance is reviewed in the same way as its companion maintenance manual. The RPSTL shall be reviewed at the same time as the companion manual.

#### 4-17. Hands-on verification.

a. Tasks to be verified. Refer to the appendix containing the verification schedule.

b. Conduct of verification. Conduct a safety briefing before any work is done. State the procedure for a task verification. The person(s) doing the work are expected to read the procedure, secure items (tools, equipment, TMDE, and mandatory replacement parts) cited in the setup portion of the task and perform any required premaintenance procedures. All (100 percent) operating and maintenance procedures, including PMCS, lubrication, and troubleshooting will be performed with no information other than that contained in the TM task at hand and the manual for any TMDE. There will be no coaching unless personnel safety or potential equipment damage is involved.

4-18. Simulation. Simulation is to be used in lieu of actual performance of a procedure only when the action would create a safety hazard or live firing of weapons would be required, and then only when approved by the contracting activity by its acceptance of the verification plan.

4-19. Combination. As required, the above methods may be used in any mix approved by the contracting activity and agreed to by interested agencies.

4-20. Rejection criteria. State the standards by which a task may be rejected. State proposed methods of attempting to resolve problems with tasks before rejection. This statement should set out how long the contractor has (in minutes) to rework the problem task before it must be sent back to the main writing facility. The decision to reject should reflect a consensus. If a consensus cannot be reached, the chairman decides. (Preferences of the technicians performing the verification shall not be cause for rejection.)

a. Team members, target audience soldiers, and contractor personnel may recommend revision of a task if such revision will eliminate unnecessary work, cut performance time, eliminate extra tools, enhance safety, or otherwise significantly improve task performance. Recommendations are to be made to the team leader who will assess the recommendation and coordinate it within the verification team for disposition.

b. Usually, a procedure is rejected when it cannot be performed without a major rewrite or illustration revision (major errors of procedure or configuration/cannot be understood), because of incompleteness, potential safety hazard, or because it would involve damage to equipment.

4-21. Handling of rejected material. Give the procedure for rework of any rejected material. Usually a rejected task will be returned to the contractor (either at the verification site or to the contractor's TM work facility) with a statement of what is wrong. The contractor is to return the reworked task within a previously agreed-on time. The task will then be reverified. If time does not permit reverification at the verification site, the contractor shall provide a certificate of validation of the rejected material with the FRC.

4-22. Forms, records, and reports. State what forms are to be used to record verification of tasks, comments, and verification completion. Refer to an appendix for samples.

#### Section VIII. Logistics demonstration

4-23. Logistics support analysis records (LSAR). List LSAR reports to be used during the LD. Suggested reports are--

LSA-001	Annual Man-Hours by Skill
LSA-003	Maintenance Summary
LSA-004	Maintenance Allocation Summary
LSA-005	Support Item Utilization Summary
LSA-006	Critical Maintenance Item Summary
LSA-007	Support Equipment Requirements
LSA-011	Requirements for Special Training Device

LSA-013	Support Equipment Grouping Number Utilization Summary
LSA-014	Training Task List
LSA-019	Task Analysis Summary
LSA-030	Indentured Parts Lists
LSA-040	Authorization List Items Summary
LSA-050	Reliability-Centered Maintenance (RCM) Summary
LSA-072	Test, Measurement, and Diagnostic Equipment (TMDE) Requirements Summary
LSA-074	Support Equipment Tool List

4-24. Areas of review.

- a. Check MAC for assignment of proper maintenance levels to tasks.
- b. Check for compatibility of equipment publications with the MAC.
- c. Check that common tools and tool sets needed for specified maintenance functions are present and adequate.
- d. Check that common and special support and TMDE needed for specified maintenance functions are present and adequate.
- e. Check that task setup blocks make reference to appropriate pre- and post-maintenance tasks.
- f. Check that repair parts are properly selected and allocated to the right maintenance level.
- g. Check that predicted MOS skill levels, man-hours allocated, and maintenance personnel required are adequate for specified maintenance functions.
- h. Check the maintainability of the end item, including subsystems and component design features.
- i. Check special-purpose kits such as winterization, weaponization, flotation, fording, litters, etc., for presence, completeness, and ease of installation and removal.
- j. Evaluate the TMDE, including ATE with the associated TPS and BIT equipment, and associated troubleshooting procedures.

4-25. Points of consideration. In this paragraph, discuss--

a. Sequence of doing evaluation work, based on maintenance level, functional grouping, whether more than one major item/assembly is available for this effort, etc.

b. Assignment of priorities in case the evaluation must be stopped before all tasks are done.

c. Provisions to avoid unnecessary repetition of access tasks or the same tasks found at different levels of maintenance.

d. Possible deletion of tasks which would give invalid results or results already known from evaluations of similar hardware or design features.

e. Two or more evaluation subteams to work on different tasks at the same time.

4-26. Recording, processing, and disposition of discrepancies. Describe the steps in recording, processing, and disposing of discrepancies found during evaluation. Include definition of discrepancies (see AMC-R 70-13 for definitions).

4-27. Changes to LSAR. Describe the procedure to be used by the LD team to transmit proposed LSAR changes to the agency maintaining LSAR (usually the contractor for the proponent agency). If a time limit for changes is to be imposed, say what it is. If specific forms are to be used for these changes, provide samples in an appendix.

Section IX. Forms, records, and reports.

4-28. Forms. Refer to paragraph 3-24.

4-29. Records and reports. Refer to paragraph 3-25.

Section X. Milestones and schedules.

4-30. Milestones. Lay out the overall milestone plan for this TM verification/LD, beginning with the first draft of this plan and running through the forwarding of final reports. Refer to an appendix if desired.

4-31. Schedules. Schedule each publication verification LD by start and complete dates. Reference the detailed schedules in an appendix.

Section XI. Final reports.

4-32. TM verification. When verification is complete, the chairing agency will prepare a final report listing publications verified, any portions or tasks not verified and reasons, findings concerning TMs verified (e.g., easily verified by target audience troops, many tasks had maintenance level changed,



a number of tools had to be changed to other tools, certain TMDE was not available so certain troubleshooting procedures were not verified, etc.), conclusions/lessons learned, and recommendations.

4-33. Logistics demonstration.

a. After completion of LD, the chairing agency will prepare a final report. This report shall give a brief history and description of the work, say to what extent the effort was done in accordance with this plan/differed from the plan, give general findings of fact about the equipment and its support items (easily maintainable, certain support equipment missing, etc.), all problem areas and proposed solutions, conclusions, and recommendations. The publications proponent shall prepare the publications portion of the report.

b. The report should provide for active participation of interested agencies in any reject review exercise. Include a target date for distribution of the final report. Report should be distributed to all interested agencies and provided for concurrence to agencies having a voting member on the team. The chair may also wish to have the marked-up master copy of the TM signed or initialed by representatives of all such agencies as an indication of concurrence and positive identification of the master copy. A copy of the final report should be furnished to the contractor.

Appendixes. See appendixes at the end of chapter 2.

## CHAPTER 5

### TYPICAL PLAN FOR TECHNICAL MANUAL VERIFICATION DURING TECHNICAL TEST II/USER TEST II (TT II/UT II)

Front matter.

Cover with date, equipment nomenclature, contractor's name, and contract number. Table of contents with section number, title, and page number.

#### Section I. Introduction.

5-1. General. Scope of verification. State that TM verification will be done (at least in part) by observing soldiers operating and maintaining the equipment during TT II/UT II.

#### 5-2. Purpose and objectives.

- a. TM verification.
- b. TT II/UT II.

5-3. Provisions. As appropriate, include a summary of pertinent contract provisions. Cite agreements made with test agencies on TM verification during TT II/UT II. List limitations on TM verification (equipment available only during certain hours or days, limited site facilities, time permitting verification only of certain vital tasks, lack of soldier-performers, etc.) and any other constraints such as funding, unavailability of any tools/test equipment, deletion of tasks, number of personnel from interested/participating agencies, etc. TM verification efforts will be preceded by a coordination meeting to consolidate Government comments. Say whether more than one end item will be available and whether multiple shifts are being considered. If only one equipment is available, state whether verification will have to be performed after TT II/UT II personnel have finished with it for the day. List all waivers from specification requirements that have been authorized.

#### Section II. Participating agencies.

5-4. Agencies with primary interest. List these. State whether each agency will have a voting member on the TM verification team in case verification of a task is not agreed on unanimously. Invite each interested responsible agency/MSA to take part in selecting/monitoring tasks to be verified, if all tasks cannot be verified in the time allotted.

5-5. Agencies with special areas of interest. List the agencies and their special areas of interest, such as MTMC for air/sea/rail transport of equipment, etc.

5-6. Responsibilities. Each agency is to provide SMEs as required, observers, monitors, etc. State which agency will chair the effort (normally the proponent command publications representative). Note special requirements generated by the conditions of verification work.

### Section III. Verification team.

5-7. Description. List skills required for the verification effort. If the team is to be divided into two or more groups to speed the work, state whether groups will be organized by equipment subsystems or logistics support items, or a combination. Type, size, and complexity of the end item being considered will indicate task group organization and number of members.

5-8. Member responsibilities. According to the preestablished verification concept, soldiers or Government civilians perform tasks selected for verification. List responsibilities of team members, including technicians, equipment specialists, publications specialists, etc.

a. Observers and monitors are to watch task performance and check for accuracy, completeness, and consistency with the MAC and the RPSTL, as well as conformance to the requirements of any agency with a special area of interest.

b. Technicians are to service, inspect, remove/install items, etc.

c. Equipment and publications specialists are to observe the technician's operation, record discrepancies, and suggest proposed changes to correct problems, collect data on task performance time, and ensure conformance to specifications, etc.

5-9. Notification of meetings. The agency chairing the effort will notify interested agencies at least xx days before the meeting, naming the location, the publication(s) or portion(s) to be verified, proposed working hours, areas of emphasis, and giving any peculiar restrictions on the effort, etc.

5-10. Visitors/observers. State any special policies on or responsibilities of visitors (persons not members of the team). If a TM verification is being accelerated, the chairing agency may restrict visitors, their activities, and access to the work area. This paragraph should outline any such restrictions, or other special provisions concerning visitors.

### Section IV. Contractor support.

5-11. Description. The Government may require the contractor to support the TM verification. Any such requirement shall be contractual. Carrying out these contract provisions will require close and continuing coordination with the contracting officer, the Government agency conducting TT II/UT II (usually TECOM for TT and OTEA for UT), and appropriate commanders at the Government installation which is the site for TT II/UT II. This paragraph shall state arrangements which have been made or are to be made to obtain all needed contractor support.

5-12. Responsibilities. List contractor support responsibilities such as furnishing the SSP (less Government-furnished materials), technical assistance through SMEs, technicians, and technical support by writers and illustrators. Say whether the contractor is to furnish an end item solely for the TM verification. Say whether LSAR is to be furnished.

#### Section V. Government support.

5-13. Responsibilities. Since the TM verification/TT II/UT II is to be done at a Government installation, responsibility falls to the Government for facilities, plant and office equipment, expendable/ durable supplies and materials, plus any portions of the SSP (specific tools, support equipment, and TMDE items) which are the Government's responsibility. List these items. With this list, requirements for support of the TM verification portion of the effort should be completely covered.

5-14. Verification timeframe. The testing/verification site should be reserved during the effort for enough time to do the desired work. Again, close coordination with all agencies involved will be mandatory.

#### Section VI. Coordination meeting.

5-15. General. Before the start of any work, the agency chairing the effort shall call a coordination meeting of all Government agencies with primary and special areas of interest. Invite contractor(s) to send representatives, as required. Use teleconferencing whenever possible to reduce travel costs. The verification chairman shall briefly review the verification process, giving any restrictions generated by the TT II/UT II. Also, responsibilities of participants shall be reviewed, in addition to a desk review being conducted on the PTM.

#### Section VII. TM verification.

5-16. Verification methods.

- a. Desk (table-top) review.
- b. Observation of TT II/UT II action.
- c. Hands-on verification.
- d. Simulation.
- e. Combination.

5-17. Desk (table-top) review.

- a. Maintenance manuals.

(1) Consolidation of comments. Initial desk review shall be performed by the proponent MSC and other participating/interested agencies before the meeting for consolidation of comments. Proponent shall send out

the manuscript for review at least 30 days before the consolidation meeting. This meeting should be held at the site of the verification/TT II/UT II for easy reference to the equipment (which should be in place).

(a) Agency representatives who go to the meeting ordinarily handcarry their comments for consolidation. Other agencies may mail, datafax, or e-mail their comments to the proponent for review and inclusion in the master copy of the TM(s).

(b) Comments agreed on by agencies will be annotated in the master copy and the performers' copies before any hands-on verification of the procedures.

(2) Points of review. Review front matter, instructions, checklists, illustrations, schematics, wiring data, descriptive data, indexes, theory, COEI, BIIL, AAL, ESML, application of RCM strategy, and the correlation of the MAC, maintenance instructions, and RPSTL for proper sequence, proper maintenance level, correct nomenclature, and mutual support. Review the RPSTL against the MAC and maintenance instructions for accurate SMR codes. Review all products for conformance to content and format requirements of applicable specifications.

(3) Markup of master copy. The chairing agency will choose an organization (usually itself or the contractor) to maintain a master copy of each publication containing all approved Government comments. This copy will become the basis for providing corrective instructions to the contractor.

b. RPSTL. The RPSTL for a designated level of maintenance is reviewed in the same way as its companion maintenance manual. If possible, the RPSTL should be reviewed at the same time as its companion manual.

#### 5-18. Observation of TT II/UT II action.

a. Before the start of verification work, interested agencies shall agree on which TM tasks can be verified by observation. The agency with logistics responsibility shall generate a list which should be agreed on at the consolidation meeting. Tasks to be verified by observation shall be matched with the schedule of TT II/UT II by coordination with test personnel.

b. Tasks shall be observed as closely as possible within the ground rules of TT II/UT II. Observers must note any deviation from the TM procedure and try to determine the cause. If the deviation was caused by a technical problem, the procedure shall be referred to SMEs for resolution and reserved for later reverification. If the deviation was caused by misinterpretation of procedures or the personal preference of the soldier, ask the soldier to do the procedure exactly as written. If the procedure verifies as written, record it as approved.

#### 5-19. Hands-on verification.

a. Tasks to be verified. Refer to the appendix containing the verification schedule.

b. Conduct of verification. State the procedure verification is to follow. The person(s) doing the work is expected to read the procedure, secure items (tools, equipment, TMDE, and mandatory replacement parts) cited in the set-up portion of the task, do any required preliminary procedures, perform the task, and do any follow-on procedures. All operating and maintenance procedures including PMCS, lubrication, and troubleshooting, will be performed with no information other than that contained in the task at hand and the manual for any TMDE used. There will be no coaching unless personnel safety or potential equipment damage is involved.

5-20. Simulation. Simulation is to be used in lieu of actual performance of a procedure only when the equipment would be damaged or live firing would be required for weapons and only when approved by the contracting activity by its approval of this plan.

5-21. Combination. As required, the above methods may be used in any mix approved by the contracting activity and agreed to by interested agencies.

5-22. Rejection criteria. Provide standards by which a task may be rejected. State proposed methods of attempting to resolve problems before rejection. This statement should set out how long the contractor has (in minutes) to rework the problem task before it must be sent back to the main writing facility. The decision to reject should reflect a consensus. If a consensus cannot be reached, the chairman decides. (Preferences of the technicians performing the verification shall not be cause for rejection.)

a. Team members, target audience soldiers, and contractor personnel may recommend revision of a task if such revision will eliminate unnecessary work, cut performance time, eliminate extra tools, enhance safety, or otherwise significantly improve task performance. Recommendations are to be made to the team leader who will assess the recommendation and coordinate it within the verification team for disposition.

b. Usually, a procedure is rejected when it cannot be performed without a major rewrite or illustration revision (major errors of procedure or configuration/cannot be understood), because of incompleteness, potential safety hazard, or because it would involve damage to equipment.

5-23. Handling of rejected material. State the procedure for rework of any rejected material. Usually a rejected task will be returned to the contractor (either at the verification site or to the contractor's TM work facility) with a statement of what is wrong. The contractor is to return the reworked task within a previously agreed-on time. The task will then be reverified. If time does not permit reverification at the verification site, the contractor shall provide a certificate of validation for the rejected material with the FRC.

5-24. Forms, records, and reports. State what forms are to be used to record verification of tasks, comments, and verification completion. Refer to an appendix for samples.

Section VIII. Technical test II/User test II (TT II/UT II).

5-25. General. These tests are separate and the responsibility of the testing agencies (usually TECOM and OTEA), which will develop and carry out plans for the tests.

Section IX. Milestones and schedules.

5-26. Milestones. Include the overall schedule for this TM verification, beginning with the first draft of this plan and running through the forwarding of final reports.

5-27. Schedules. Schedule each publication verification by start/complete dates. Reference the detailed schedules in an appendix.

Section X. Final report. Refer to paragraph 2-25.

5-28. TM verification. See paragraph 4-32.

Appendixes. See appendixes at the end of chapter 2.

## CHAPTER 6

### TYPICAL PLAN FOR VERIFICATION OF A SUPPLEMENT TO A COMMERCIAL OFF-THE-SHELF MANUAL

Front matter.

Cover with date, equipment nomenclature, contractor's name and contract number, and agency preparing the plan.

Table of contents with section number, title, and page number.

Section I. Introduction.

6-1. General. Scope of verification.

6-2. Purpose and objectives. Ordinarily, the purpose of this verification will be to prove the accuracy of information supplementing the manufacturer's operating, maintenance, lubrication, and safety instructions. The objective is to verify portions of the supplement - the MAC, any additional operating and maintenance instructions, lubrication instructions, BIIL, AAL, ESML, etc.

6-3. Provisions.

a. As appropriate, include a summary of pertinent contract provisions. Verification of supplementary data will be preceded by a coordination meeting to consolidate Government comments.

b. List the limitations imposed on this effort by the type of acquisition (e.g., COTS) and the fielding date, the time available for verification, complexity of the equipment, degree of supplementation needed, and the established history of commercial use. If space and time available for verification dictate a bare-bones approach and minimum number of participants, and TRADOC concurs, so state. (The COTS manual itself is considered to have been validated by public acceptance and use.)

c. State what products are to be verified. This may include any expanded operating and maintenance instructions, the MAC, lubrication instructions, a safety summary/warning page, PMCS (shall be 100 percent hands-on), COEI/BIIL, AAL, ESML, cross reference lists of NSNs to manufacturer's part numbers, shipping/storage instructions, etc.

d. State whether an end item will be available for this effort. Indicate what type of verification is planned - desk top, verification of all tasks on certain items, verification only of certain tasks, or witnessing the contractor validate supplementary data he has prepared.

Section II. Participating agencies.

6-4. Agencies with primary interest. List these. State whether each agency



will have a member voting on the team in case verification of a task is not agreed to. If time available will limit the size of the verification effort, so state. As far as possible, invite each interested agency to send a representative.

6-5. Agencies with special areas of interest. List these with area of interest for each, such as MTMC for air/sea/land transport of materiel.

6-6. Responsibilities. As required, each agency is to provide SMEs, observers, monitors, and target audience soldiers/MOS-qualified experienced soldiers (if they are to perform verification or if the Government has agreed to supply such soldiers to do validation/ verification). State which agency will chair the effort (normally, the proponent command publications representative).

### Section III. Verification team.

6-7. Description. Refer to paragraph 3-7. Space and time constraints may limit the number of active participants. Usually, a minimum team is--

- a. Proponent command publications representative (chairs the effort).
- b. Proponent command equipment specialist.
- c. TRADOC SME (may be from a TRADOC school).
- d. MRSA representative.

6-8. Member responsibilities. Refer to paragraph 3-8.

6-9. Notification of meetings. Refer to paragraph 3-9.

6-10. Visitors/observers. Refer to paragraph 3-10.

### Section IV. Contractor support.

6-11. Description. If verification space and time are limited, the Government will probably require the contractor to support verification but this requirement must be contractual. Again, use of such support will need close and continuing coordination with the contracting officer. State what arrangements have been made (or must be made) to obtain all needed support.

6-12. Contractor responsibilities. As required by contract, the contractor will provide facilities, copies of material to be verified, provide technical assistance through technical experts/writers/ illustrators, equipment, one or more work sites, repair parts, tools, expendable/durable supplies and materials, correction of draft materials (spell out in detail), etc.

Section V. Government support.

6-13. If verification is to be done at a Government installation, the Government will have responsibility for facilities and plant and office equipment. List these responsibilities, as well as other portions of verification support which are the Government's responsibilities (tools, support equipment, TMDE items, etc.).

Section VI. Coordination meeting.

6-14. General. If verification time is to be limited, the coordination meeting may be shortened but should be held, as abbreviated verification will make it vital to have clear understandings beforehand of what will and won't be done. Invite all agencies which must approve the verified information; make certain the contractor is also invited. Review this plan with attendees to be sure each representative knows what is expected, when events are scheduled, how publication changes will be handled, and the plan for follow-on actions and the final report.

Section VII. Verification.

6-15. Methods.

- a. Desk review.
- b. Hands-on verification.
- c. Simulation.
- d. Combination of the above.

6-16. Desk (table-top) review.

a. If there has been time to send review copies of the material to interested agencies, these agencies should hand-carry their comments to the coordination meeting. Others may mail, datafax, or e-mail comments to the proponent for review and inclusion in the master copy of the Tms. Comments agreed upon by attendees shall be annotated in the master copy and performers' copies before any hands-on verification of procedures.

b. Review the material for accuracy, completeness, and agreement with the maintenance philosophy as shown in the MAC.

6-17. Hands-on performance.

a. Limited time for verification will require a rigorous examination of tasks which are candidates for hands-on performance. The review should take into account the estimated performance times shown in the MAC. However, all PMCS tasks shall be verified hands-on. Tasks selected for performance should be listed in an appendix. Hold a safety meeting before any work is done.

b. State the procedure for task verification. Refer to paragraph 4-17b.

6-18. Simulation. Refer to paragraph 4-18.

6-19. Combination. As required, the above methods may be used in any combination approved by the contracting activity and agreed to by interested agencies.

6-20. Rejection criteria. Refer to paragraph 4-20.

6-21. Handling of rejected material. Refer to paragraph 4-21.

6-22. Forms, records, and reports. State what forms are to be used to record verification of tasks, comments, and verification completion. Refer to an appendix for samples.

Section VIII. Milestones and schedules.

6-23. Milestones. Lay out the overall milestone plan for this verification, beginning with the first draft of this plan and running through the forwarding of final reports. Refer to an appendix, if desired.

6-24. Schedules. Schedule the verification by start and complete dates. If desired, refer to an appendix.

Section IX. Final report.

6-25. General. Refer to paragraph 2-25.

Appendixes. See appendixes at the end of chapter 2

The proponent of this pamphlet is the U.S. Army Materiel Command, Materiel Readiness Support Activity (MRSA). Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, USAMC MRSA, ATTN: AMXMD-MP, Lexington, KY 40511-5101.

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## APPENDIX A

## REFERENCES

## Section I. Required Publications

AR 25-30	The Army Integrated Publishing and Printing Program (Cited in paragraphs 1-1 and 1-6.)
AR 70-10	Test and Evaluation During Development and Acquisition of Materiel (Cited in paragraph 1-6.)
AR 700-127	Integrated Logistics Support (Cited in paragraph 1-6.)
AMC-R 70-13	Test Incident and Related Reporting (Cited in paragraph 4-26.)
AMC-R 700-15	Integrated Logistics Support (ILS) (Cited in paragraph 1-8.)

## Section II. Related Publications.

AR 70-1	Systems Acquisition Policy and Procedures
AR 71-3	User Testing
AR 611-201	Enlisted Career Management Fields and Military Occupational Specialties
AR 750-1	Army Materiel Maintenance Policies
AMC-P 70-2	AMC - TRADOC Materiel Acquisition Handbook
AMC Suppl 1 25-30	The Army Integrated Publishing and Printing Program to AR 25-30
MIL-M-63010	Manuals, Technical: DoD Generator Sets
MIL-M-63036	Manuals, Technical: Operator's, Preparation of
MIL-M-63038	Manuals, Technical: Organizational or Aviation Unit, Direct Support or Aviation Intermediate, and General Support Maintenance
MIL-M-85377	Manuals, Technical: Quality Assurance Program; Requirements for

## GLOSSARY

## Section I. Abbreviations

AAL-----additional authorization list  
 AIT-----advanced individual training  
 AMC-----U.S. Army Materiel Command  
 ASL-----authorized stockage list  
 ATE-----automatic test equipment  
 BIIL-----basic issue items list  
 BIT-----built-in test  
 CAGE-----commercial and government entity  
 CG-----Commanding General  
 COEI-----components of end item  
 COTS-----commercial off-the-shelf  
 DSN-----Defense Switched Network (formerly  
           AUTOVON)  
 DT-----developmental test (formerly technical  
           test)  
 e-mail-----electronic mail  
 ESML-----expendable/durable supplies and materials  
           list  
 FRC-----final reproducible copy (formerly final  
           draft equipment publication)  
 ILS-----integrated logistics support  
 IPR-----in-process review  
 LD-----logistics demonstration  
 LEA-----Logistics Evaluation Agency  
 LSA-----logistics support analysis  
 LSAR-----logistics support analysis record  
 MAC-----maintenance allocation chart  
 MOS-----military occupational specialty  
 MRSA-----U.S. AMC Materiel Readiness Support  
           Activity  
 MSC-----AMC major subordinate command  
 MTMC-----Military Traffic Management Command  
 NSN-----National stock number  
 OTEA-----Operational Test and Evaluation Agency  
 PLL-----prescribed load list  
 PMCS-----preventive maintenance checks and services  
 PMO-----Product/Program/Project Manager's Office  
 PTM-----preliminary technical manual (formerly  
           draft equipment publication)  
 RCM-----reliability-centered maintenance  
 RPSTL-----repair parts and special tools list  
 SME-----subject matter expert  
 SMR-----source, maintenance, and recoverability  
           (codes)  
 SSP-----system support package  
 TECOM-----U.S. Army Test and Evaluation Command  
 TM-----technical manual  
 TMDE-----test, measurement, and diagnostic  
           equipment

TPS-----test program set  
TRADOC-----U.S. Army Training and Doctrine Command  
TT II/UT II-----technical test II/user test II

## Section II. Terms

Validation-----The process by which a contractor (or other agency, as directed by the contracting activity) tests a technical manual for completeness, compliance with contractual requirements, and technical accuracy. It is conducted at the contractor's facility or at the operational site, and entails the actual performance of operating and maintenance procedures on the equipment for which the publication was written. Data such as stock/part numbers and SMR codes in RPSTL, hardware depiction, schematic diagrams, and wiring data contained in the publication are checked against current source data.

Verification-----The process by which a technical manual is tested and proved (under Army or other DOD component jurisdiction) to be adequate for the operation and maintenance of equipment procured for operational units. The preferred method for verification is performance of all operating and maintenance procedures as a separate process using both production equipment and military operational and maintenance personnel of the appropriate MOS and skill level expected to use and maintain the equipment when deployed. Safety related or mission essential operating and maintenance instructions will be physically performed on the equipment prior to issue to the field except when a procedure would be hazardous to personnel or equipment (e.g., emergency procedures for aircraft or artillery).

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